WHAT IS CLAIMED IS

1.   A method for dynamically controlling operation of a rheometer, comprising:

creating a program on a programming interface for executing a test upon a sample in a rheometer by receiving user selections of a plurality of nodes and connections of each node to another node according to directional connection indicators, wherein nodes indicate steps for performing a test upon a sample or configuring a rheometer for performing a test upon a sample;

creating scripts for generating a sequence of instructions to the rheometer, wherein the scripts include instructions for performing steps indicated by each of the selected nodes and in accordance with the directional connection indicators;

downloading low-level instructions from the scripts for execution in the rheometer; and

instructing systems in the rheometer to perform the downloaded instructions.

2.   The method of claim 1, wherein the programming interface is a graphical user interface enabling a user to select pre-existing icons or create icons representative of nodes.

3.   The method of claim 1, further comprising steps of identifying parameters associated with each selected node and receiving respective parameter values from a user, wherein the scripts are generated in accordance with the selected parameter values.

4.   The method of claim 3, further comprising a step of generating forms for prompting a user to enter, confirm, or modify parameter values.

TA-612

5.   The method of claim 3, wherein scripts are created in accordance with information retrieved from a node class library, which tracks parameters associated with nodes and connections between nodes.

6.   The method of claim 3, wherein certain nodes are dynamically created, further comprising a step of determining parameters to be identified for each dynamically created node.

7.   The method of claim 1, wherein a sequence engine in the rheometer receives the scripts for executing the instructions independently of the programming interface.

8.   The method of claim 7, wherein the scripts are downloaded to the rheometer via a TCP/IP connection for operation without further intervention from the programming interface.

9.   The method of claim 1, wherein certain selected nodes are representative of a plurality of other nodes connected by directional connection indicators for grouping instructions associated with a test to be performed in the rheometer.

10.   The method of claim 1, wherein the programming interface includes a chart for enabling a user to graphically select and drag icons from a palette.

11.   The method of claim 1, wherein the programming interface includes a tree view for hierarchical navigation through selected nodes.

12.   The method of claim 1, wherein the programming interface includes both a chart for enabling a user to graphically select and drag icons from a palette and a tree view for hierarchical

TA-612

navigation through selected nodes, and any change to either the chart or tree automatically results in corresponding change in the tree or chart, respectively.

13.   A method for dynamically creating test sequences for a rheometer, comprising:

selecting a plurality of nodes, wherein the nodes indicate steps for performing a test upon a sample or for configuring a rheometer for performing a test upon a sample;

connecting each node to another node according to directional connection indicators;

selecting parameter values associated with particular nodes, and

when parameter values for a first node depend upon results of a second node, connecting the first and second node according to data flow indicators.

14.   The method of claim 13, wherein scripts are created for generating a sequence of instructions to the rheometer indicated by each of the selected nodes and in accordance with the directional connection indicators and data flow indicators.

15.   The method of claim 14, wherein low-level instructions are downloaded from the scripts for instructing drivers in the rheometer for performing the downloaded instructions.

16.   The method of claim 14, wherein certain selected nodes are representative of a plurality of other nodes connected by directional connection indicators for grouping instructions associated with a test to be performed in the rheometer.

17.   The method of claim 13, wherein nodes are selected by dragging icons from a palette in a graphical user interface.

TA-612

18.   A method for dynamically configuring a rheometer to perform customized testing, comprising:

   providing a programming interface for receiving user selections of a plurality of nodes and connections of each node to another node according to directional and data flow connection indicators, wherein nodes indicate steps for performing a test upon a sample or configuring a rheometer for performing a test upon a sample;

   creating scripts for generating a sequence of instructions to the rheometer corresponding to programs created in the programming interface; and

   downloading low-level instructions from the scripts to the rheometer,

   wherein the rheometer is configured to execute low level instructions in a program sequence engine for operating drivers in the rheometer.

19.   The method of claim 18, wherein the programming interface is a graphical user interface by which nodes can be selected from a palette through a drag-and-drop graphical display.

20.   The method of claim 18, wherein scripts are created in accordance with values and parameters associated with nodes and maintained in a node class library.

21.   The method of claim 18, wherein the sequence engine in rheometer executes the instructions independently of the programming interface.

22.   The method of claim 21, wherein the scripts are downloaded to the rheometer via a TCP/IP connection for operation without further intervention from the programming interface.

TA-612

23.   A system for dynamically controlling operation of a rheometer, comprising:

a programming interface for executing a test upon a sample in a rheometer by receiving

user selections of a plurality of nodes and connections of each node to another node according to

directional connection indicators, wherein nodes indicate steps for performing a test upon a

sample or configuring a rheometer for performing a test upon a sample;

a scripts generator for generating a sequence of instructions to the rheometer, wherein the

scripts include instructions for performing steps indicated by each of the selected nodes and in

accordance with the directional connection indicators;

an output interface for downloading script files to a program sequence engine in a

rheometer for executing low-level instructions for operating drivers in the rheometer.

24.   The system of claim 23, wherein the output interface additionally downloads instructions

to an analysis and presentation tool for creating reports for display to a user.

25.   The system of claim 23, wherein the programming interface operates on a graphical user

interface for enabling selection of nodes and connections of nodes without requiring a user to

enter programming code.

26.   A method for dynamically controlling operation of a rheometer, comprising:

creating a program on a programming interface for executing a test upon a sample in a

rheometer by graphically selecting and positioning icons from a palette to a chart using a

graphical user interface, wherein each icon indicates one or more steps for performing a test

upon a sample or configuring a rheometer for performing a test upon a sample;

selecting parameters values for performing test steps, wherein parameters associated with

each test step are presented in a plurality of dynamically generated forms; and

downloading low-level instructions for performing the indicated tests in accordance with the selected parameters for performance in the rheometer.

27. The method of claim 26, further comprising the step of encapsulating a sequence of steps for performing a test in a rheometer to be represented as a single icon.

28. A method for dynamically controlling operation of a rheometer assembly, comprising:

creating a program on a programming interface for executing a test upon a sample in a rheometer;

downloading low-level instructions for performing the programmed tests in the rheometer; and

downloading instructions for analyzing raw data to be input to a presentation and reporting interface from the rheometer.

29. A method for dynamically controlling operation of a rheometer comprising:

a step for creating a program on a graphical instrument interface;

a step for downloading instructions for performing tests according to the program; and

a step for converting raw data to rheological parameters.

TA-612